

REMARKS

Applicant acknowledges the First Office Action of 19 NOV. 2003 and requests reconsideration of the application, as amended.

Responsive to Paragraph 1, the specification has been amended to correct various typographical errors, as helpfully suggested by the Examiner, and to better describe the drawings.

Responsive to Paragraphs 2-6, the wording of claim 1 has been clarified, and some features have been moved into new dependent claims 2 & 3. In order to avoid reciting "button or sensor", a new claim 4 has been added, directed to the "sensor" version; support is found at specification page 3, top.

CLAIM REJECTION -- SECTION 103(a)

Paragraph 8 rejected claim 1 as obvious over the combination of LEE with INOUE.

LEE (US Pat. Pub'n 2002-0180762-A) discloses a pendant cellphone in which the display direction of the LCD can be rotated 180 degrees by simply reversing pixel addresses left-for-right and top-for-bottom, as described at col. 3, paragraph 30. It is apparent that the image displayed is exactly the same in both modes, as shown in FIG. 2.

No change in display format is suggested.

INOUE+/MITSUBISHI (USP 6,332,024) discloses, in FIG. 13, a cellphone having six different Internet modes G-0 through G-5, in one of which (G-3) logos of an envelope and of a telephone appear simultaneously. No manufacturer's logo is apparent in FIG. 13. One or more "soft keys" can be programmed to make mode changes.

Neither LEE nor INOUE provides any particular motivation to try to combine their features. Even if such a combination were (1) attempted and (2) successfully accomplished, the combination of features recited in claim 1 would not be achieved, because the sequence of data fields would not be inverted (contrast the left & right columns of present FIG. 3), but would remain the same, and the relative positions of any logos would remain the same. There is no suggestion in either reference of keeping the number of the incoming caller in the **most visible place**, as a function of device orientation, because LEE and INOUE are skinny cellphones, not caller ID units which sit stably in either a vertical orientation or a horizontal orientation. Reconsideration of the § 103 rejection based on LEE & INOUE is solicited.

CLAIM REJECTION -- SECTION 103(a)

Paragraph 9 rejected claim 1 as obvious over a combination of LIM/CYBIOTRONICS with VANTILLA/NOKIA.

LIM (USP 6,067,355) discloses a caller ID device with special data fields for numbers, minutes and dates, and a telephone icon. However, as noted by the Examiner, no display inversion is taught or suggested.

VANTILLA (USP 6,173,194) discloses a cellphone with a reconfigurable LCD display. However, careful reading reveals that the "inverse video" mentioned at col. 4, line 26, means switching between black-characters-on-white mode and white-characters-on-black mode, and has nothing to do with vertical inversion. Further, the display format reconfiguration discussed at the cited col. 4, lines 43-57, is between lines of characters

running either parallel to axis 20 (i.e. vertically) or perpendicular to axis 20 (i.e. horizontally), similar to a 90 degree rotation, and does not change the orientation of the individual characters at all. Neither the character orientation nor the vertical sequence of the data fields is changed, contrary to the recitations in present claim 1. The "external button" cited at col. 5, lines 45-58, is an actuator 23 "for selecting individual ones of the indicia (# , *)" or *making menu selections*, not for *triggering inversion of fields* on the LCD.

Without having read the present disclosure, there would be no reason to consider trying to combine the LIM caller ID unit with the VANTILLA cellphone. Even if this were (1) attempted and (2) successfully accomplished, the result would be a device in which a button could trigger "reverse video" or make words run vertically rather than horizontally, not turn anything upside-down. This would not be useful in a caller ID device rotatable between a stand-up vertical orientation and a horizontal orientation. Reconsideration of the section 103 rejection based on LIM and VANTILLA is solicited.

The remaining references have been reviewed and are respectfully submitted to be no more pertinent.

Kärkkäinen+/SONY (USP 6,600,936) discloses a cellphone having a jog dial 6 for scrolling through a sequence of icons. However, nothing about vertically inverting a display is shown.

OBA+/SONY (USP 6,441,828) discloses a rectangular monitor which can be oriented short-side-down or long-side-down, with the image rotated correspondingly by 90 degrees. No vertical inverting of a sequence of data fields is suggested.

KIM/SAMSUNG (USP 6,346,972) discloses another rectangular monitor which can be pivoted, with corresponding image rotation. No vertical inverting of a sequence of data fields is suggested.

SUGAYA/SONY (USP 6,239,787) discloses using rotated smiley faces and frowning faces to help evaluate service levels near a cellphone base station. However, this has little to do with caller ID data fields and does not suggest the kind of display inversion recited in claim 1.

CUSHMAN/FUJITSU (USP 6,125,287) discloses a cellphone with a number directory through which the user can scroll. However, no vertical inversion of the image on the LCD is suggested.

MARTINEZ/IBM (USP 6,137,468) discloses a laptop computer in which the displayed image is automatically rotated as the laptop rotates, so as to keep the image horizontal. However, the kind of vertical display inversion recited in claim 1 is not suggested.

SAKAMOTO/SHARP (USP 5,329,289) discloses another rectangular computer monitor in which the image can be rotated 90 degrees. However, the kind of vertical display inversion recited in claim 1 is not suggested.

CONCLUSION

In view of the foregoing amendments and arguments, it is respectfully submitted that claims 1-3 are allowable. If the Examiner detects any remaining informalities which need to be corrected to place the application in condition for allowance, a telephone call to Applicant's counsel is invited. It is noted that the drawings **have been accepted** and that receipt of the Brazilian priority document MU 8100823-6 has been acknowledged.

Respectfully submitted,

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AN INVERTIBLE CALL IDENTIFIER DISPLAY INVERSION

FIELD OF THE INVENTION:

The purpose of ~~this patent~~ the present invention is the upgrading of an electronic device for the identification of incoming phone calls, with the innovative aspect that this specific device presents the possibility of ~~inversion~~ inverting both the characters and the sequence of data fields displayed on the liquid crystal display.

BACKGROUND:

Phone call identifiers are common electronic devices nowadays; such devices employ a micro-controller (7), a phone line (6) multi-frequency signal decoder (5), a display (1), an energy source (2), data storage memory (11), etc.

The display has the function of showing the number of the telephone from which the phone call is originating, or the name of the caller, or also the name of the person to whom a call is being made. ~~According to~~ Depending upon the external design of the identifier, the display can be ~~seen in~~ viewed within a wider or narrower arc or angle range.

Current phone call identifiers have been designed in such a way that there is only one ~~position~~ orientation for the data display; either horizontally or vertically. Whatever the position, whoever is using the device must always ~~position~~ rotate the LCD horizontally to face himself, for better legibility. ~~visualization~~.

SUMMARY OF THE INVENTION:

This ~~patent consists in the~~ invention features a combination of hardware (LCD) and software (micro-controller) which enables ~~the~~ vertical inversion of the data sequence presented ~~in~~ on the display, once an external button or sensor is activated or pressed.

LCD (Liquid Crystal Display) modules are interfaces in microprocessor systems, which utilize their own controlling devices and may be programmed according to their matrix,

receiving an operation routine via software. Such a matrix is determined when the display is manufactured, during which respective patterns of dots or pixels are defined, gather collectively forming either a letter, a number and/or icons such as a telephone (40), an envelope (41), etc. In the same way, other dots may be eliminated to simplify the system and its programming.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1: shows the operational diagram of the identifier of calls, where a button to activate the display inversion has been added (9), and is connected to the micro-controller. The diagram also identifies the keyboard of the call identifier (8), the module receiving multi-frequency signals (4), the module of an energy source (3), and the processor (10).

FIGURE 2: illustrates the identifier casing, which can be displayed oriented horizontally or vertically. In the ~~first~~ vertical option, the display is in the original orientation position (21). Whenever the person using the device wishes to place the device into the horizontal orientation position, all such person has to do is press the inversion button for a few seconds and the controller will alter the instructions ~~on~~ to the display screen correspondingly.

FIGURE 3: shows the matrix of the display, where one can find the lines or data fields for names (31), numbers (32), minutes (33), and logo (34). In the first orientation position, shown in the boxes at left, the display may be switched to "stand-by" mode (35), or in the process of identifying an incoming call. In the second orientation position, shown in the boxes at right, the display is inverted during ~~on~~ stand-by mode (36) as shown at top right and also when turned on or initialized (38), as shown at bottom right. It is apparent that, in both orientations, the telephone number is displayed on that part of the screen which is closest to the viewer, that is, the upper part of the screen when in the vertical orientation and the lower

part of the screen when in the horizontal orientation.

According to the illustrations, the display ~~model of the~~ present invention is based upon a new matrix and implementation of new instructions and codes, ~~with~~ which, once recorded in its circuits, follow the reorganization instructions ~~of~~ for the active dots, every time the controller receives a command by means of a button, sensor, or any other form of electric signal.

The applied matrix consists of pre-determined fields ~~with~~ which will form the ~~characters of~~ letter or number characters. The inversion of the display is not symmetrical, that is, the fields will also be presented in the new lay-out, but without affecting the reading of the data. In other words, the field which displays names (31), for instance, will be seen in the upper part of the display in one orientation position, and in the lower part in the other; the same happening ~~witty with~~ the fields for numbers (32), minutes (33) and date (39). Icons such as manufacturer's logo (34), telephone (40) and envelope (41), have double matrix, that is, they are inverted so as to remain side by side, so that the corresponding version is activated according to the orientation position of the display. Since they consist of predefined gathered or grouped dots, each icon is activated ~~with~~ by using only one code.

Therefore, ~~this model~~ the invention presents a number of advantages over ~~current models~~ prior art call displays, besides the innovative aspect, thus deserving the legal protection being requested.